

CITY AND COUNTY OF THE CITY OF CHESTER.



ANNUAL REPORT

TO

THE MAYOR, ALDERMEN, AND COUNCILLORS OF THE
CITY AND COUNTY OF THE CITY OF CHESTER,

ON THE

HEALTH OF THE CITY

IN

1920

BY

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MEDICAL OFFICER OF HEALTH.

CHESTER :

TAPLEN & PADDOCK, PRINTERS, EASTGATE ROW (NORTH).

1921.

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Medical Officer of Health - - - D. RENNET, M.B.E., M.D., D.P.H.

Assistant Medical Officer of Health - A. MIDDLETON BROWN, M.A.,
M.D., D.P.H.

Chief Inspector - - - S. H. MOORE.

District Inspectors - - - { J. BUCKLEY.
M. G. H. TRESIDDER.

Assistant Sanitary Inspector - - H. HEWITT.

Lady Health Visitors - - - { MRS. C. V. ROCHFORD.
MISS E. FLACK.

School Nurse - - - MISS A. GIBSON.

Succeeded by - - - MISS C. EDGELLER.

Tuberculosis Visitor and Nurse - - MISS C. BAZELY.

Succeeded by - - - MISS R. LOCKLEY.

Clerks - - - { F. THOMAS.
W. CALDER.

Sanitary Labourer - - - J. HANLIN.

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In presenting my report for 1920 on the Health of the City of Chester, I take the opportunity of drawing attention to certain developments in Public Health which will likely lead to administrative action in the near future. The outlook and aims of Preventive Medicine have been constantly widening, and in the last twenty years there has been a very evident extension of its field and alteration in its aim. At first chiefly concerned with such questions as pure water supplies, efficient sanitation, the purity of food supplies, the control of infectious diseases, and other questions affecting mass population, it has slowly come to take more thought of the individual. From dealing solely with environment of masses, the environment of the individual has been recognised as a pressing question. The Notification of Births Act, the Medical Inspection of Schools, the establishment of Maternity Clinics and Infant Welfare Centres are steps along this road of progress. The individual environment was recognised as a matter for action, but we are coming to see further. The individual is a product of his environment, even to the extent not merely of preventing illness but of producing fitness. This, however, postulates a very wide interpretation of environment. It would include parentage and all external influences from the beginning of life onwards: his feeding, clothing, exercise, work, education.

It is evident that the most important part of this environment depends on the individual: on how he uses the material environment available. He may use it badly and suffer and make those dependent on him suffer, or he may use it well. His own action forms the most important part of his environment. How can those individual actions be influenced? Evidently only by education. The State or a Local Authority may provide the tools: in the form of pure water and air, pure food, and good housing, and it can teach how to use them.

This teaching will be successful in the measure that public opinion is willing to accept it. The production of an enlightened public opinion is therefore necessary to success. Something is already being done in the teaching of Hygiene in Schools, in the School Clinics, and Infant Welfare Centres, but in no case with very satisfactory results. The adult population is already steeped in a mass of habit and soaked in indifference, so that it is difficult to arouse sufficient interest in the subject. The younger mothers are perhaps those who are best repaying our efforts. The most promising field, however, is the prospective parent, and a much more intense and practical effort ought to be directed to their enlightenment. The older pupils in all schools ought to have an extended course of Hygiene which should be continued in the Continuation Classes, and taught in the most practical manner possible. This should be followed up by organising healthy recreation for both sexes, and an extended propaganda in which the Press, the Pulpit, and the Physician should all take a part. Without the systematic interest of the people Public Health cannot develop along the best lines to the production of fitness.

City and County of the City of Chester.

ANNUAL REPORT OF THE MEDICAL OFFICER OF HEALTH

NATURAL AND SOCIAL CONDITIONS OF THE DISTRICT.

The census of 1911 shewed the population of Chester to be 39,028 and the growth during the inter-censal period was only at the rate of 70 per annum. For the year under review the Registrar-General gives the civilian population as 42,388 and the total population as 42,571. If the coming census shews these figures to be substantially correct the average annual increase for the last ten years will have been about 353. The figure of population given corresponds roughly with an estimate made locally from an enumeration of population in a limited number of houses.

The City stands on undulating ground varying from about 18 feet to 100 feet above sea level, the soil is largely a light clay in nature but the older part of the City is built on sandstone. The climate is equable shewing neither great cold in winter nor great heat in summer with also a quite moderate daily range. The most prevalent winds are westerly and harsh easterly winds are relatively uncommon.

Chester being the County Town and marketing centre for a very populous district the inhabitants are largely employed in business, but railway companies, engineering, tobacco and lead works and market gardening employ a number of residents, while a large number are also employed in iron works, and in boat building just outside our boundaries. There has been no evidence that any of those forms of employment has acted injuriously on the health of the population.

VITAL STATISTICS.

In the following table the principle figures in the vital statistics of the City are given for the last five years.

	1920	1919	1918	1917	1916	1915
Population total (Registrar General's Estimate) ...	42571	42464	43285	41537	39730	37716
Population Civil (Registrar General's Estimate) ...	42388	40764	38631	37262		
Birth Rate ...	25·6	17·87	17·35	18·10	21·55	21·76
Death Rate (crude) ...	12·24	13·47	17·42	15·55	16·66	17·65
Enteric Fever ...	0·04	0·05	0·02	0·00	0·00	0·02
Small Pox... ..	0·00	0·00	0·00	0·00	0·00	0·00

	1920	1919	1918	1917	1916	1915
Measles	0·21	0·00	0·15	0·13	0·00	0·47
Scarlet Fever	0·02	0·00	0·00	0·00	0·00	0·02
Whooping Cough	0·00	0·09	0·28	0·29	0·10	0·24
Diphtheria	0·02	0·00	0·07	0·11	0·17	0·21
Total Zymotic (excluding						
Influenza	0·30	0·15	0·54	0·54	0·27	0·98
Influenza	0·12	0·83	2·48	0·29	0·38	0·24
Pulmonary Tuberculosis...	0·66	1·13	1·44	1·42	1·30	1·06
Total Tuberculosis	0·85	1·30	1·76	2·12	1·74	1·61
Bronchitis	1·50	1·08	0·82	1·66	2·06	1·77
Pneumonia	0·99	1·13	3·01	1·39	1·63	1·32
Total Pulmonary (non-						
tuberculous	2·45	2·40	4·03	3·25	3·95	3·26
Cancer	1·30	1·03	1·16	1·37	1·83	1·48
Diarrhoea and Enteritis						
(under 2 years) per 1000						
births	8·10	10·54	18·64	5·31	22·07	29·0
Total Deaths (under 1						
year) per 1000 births...	68·7	84·32	89·20	83·3	91·1	106·9

The estimates of population are the Registrar-General's and agree fairly closely with that made locally.

BIRTHS.—After correction for inward and outward transfers 1091 births stand to be credited to Chester for the year. The rate is 25·6 per 1000, which is 7·7 higher than in 1919, and 2·3 higher than in 1914. Fifty-six or 5·1 per cent. of the births were illegitimate.

The birth-rate for the City from 1883 to 1920 is given below :—

CHESTER BIRTHS, 1883-1920.

1883—1887	...	30·54
1888—1892	...	29·14
1893—1897	...	29·74
1898—1902	...	27·63
1903—1907	...	26·91
1908	...	24·99
1909	...	24·98
1910	...	25·17
1911	...	23·83
1912	...	22·88
1913	...	23·74
1914	...	23·31
1915	...	21·67
1916	...	21·55
1917	...	18·10
1918	...	17·35
1919	...	17·87
1920	...	25·62

Five hundred and nineteen Chester residents died during the year. This gives a crude death-rate of 12·24 the lowest rate so far recorded in the City. This is 1·23 below the previous lowest which was recorded in 1919 and 3·91 below the average for the previous five years. Although this steady fall in the death-rate is satisfactory we cannot give ourselves credit for more than keeping pace with a corresponding fall throughout the country. The rate is fractionally better than that for England and

Wales which is 12·4 and fractionally worse than the rate for 148 smaller towns with populations of from 20,000 to 50,000. This is the position we generally occupy and are likely to occupy for some considerable time. Although we are not an industrial town suffering all the disabilities of such a population we are far more crowded than many of the smaller towns with which we are classed, and are to that extent handicapped. During the year there has been no serious epidemic and no greatly increased death-rate in any age group or occupation. The total zymotic death-rate for the year is below the average for the last five years and the influenza rate is much below. The bronchitis rate is just the average but the pneumonia rate is much below the five years average, being 0·99 compared with 1·69. One of the most gratifying points in this year's statistics is the marked fall in the death-rate from tuberculous diseases. The rate for tuberculous disease of the lungs this year is 0·66 while the average for the last five years is 1·27, a fall of 0·61, being only 52 per cent. of the average. The total tuberculous death-rate is correspondingly reduced being 0·85 in place of the average of 1·71. The non-pulmonary tuberculous death-rate remains the same, the deaths being comparatively few only 8 in all.

One other satisfactory fall is in the rate of deaths of infants under one year of age. The rate for the year is 68·7 per 1000 births while the average for the past five years is 91·0 an improvement of 22. The corresponding rate for England and Wales and the smaller towns similar to Chester is 80·0 per 1,000 births.

The diarrhoeal death rate in infants under one year is also lower being 8·10 and the five years average 17·11. Here however we are only reflecting the rate throughout the Country, the rate being 8·3 for England and Wales and 7·8 for the smaller towns.

The statistics of births and deaths can be said to be very satisfactory. The birth rate is higher than for many years and the infant death rate lower. It can reasonably be supposed that those surviving are more fit than was the case some years since.

The general death rate is the lowest recorded in Chester and while there has been no marked increase in deaths from any one cause there have been some marked reductions.

The following table shews the death rates from 1883:—

<i>Quinquennial Periods.</i>		<i>Rate per 1,000.</i>
1883—1887	...	20·53
1888—1892	...	20·73
1893—1897	...	19·69
1898—1902	...	19·20
1903—1907	...	17·19
1908—1912	...	15·44
<i>Yearly rates.</i>		
1913	...	15·72
1914	...	14·13
1915	...	17·65
1916	...	16·66
1917	...	15·55
1918	...	17·42
1919	...	13·47
1920	...	12·24

The Medical Charities continue to be made full use of. The Chester Royal Infirmary attended to the medical needs of 7,484 patients during the year. The patients are drawn from the Chester district and North Wales and there is no means of knowing the number of Chester residents treated in the institution. A large number of the out-patients and home-patients, together numbering 5,834, would be resident in Chester or immediate neighbourhood. Between fifteen and sixteen per cent of the deaths of Chester residents took place in this institution.

The Benevolent Institution continues to do a large amount of the midwifery in Chester. Seven out of the 19 midwives practicing in the City work from the Institution. There are also two beds available for patients' in the home, and 14 Chester mothers were confined there during the year.

The Chester and District Nursing Association continues to do a large amount of work. Under the agreement with the Local Authority a number of complicated cases of measles were attended to at home by the Association nurses who also saw to the treatment of a number of minor ailments of school children.

POOR LAW RELIEF.—The amount of out-door relief administered during the year was £6,965 compared with £5,516 last year and £4,834 in 1913.

SANITARY CIRCUMSTANCES OF THE CITY.

WATER SUPPLY.—In my last years report I remarked on the single line of defence on which Chester was dependent for the safety of its water supply. During the year under review the Water Company have commenced the erection of a series of rapid filters through which it is proposed to pass all the water previous to filtration through sand. Those filters, the Paterson Rapid Filtration Plant, are designed so that they can be used with a chemical precipitant so as to increase the efficiency of the filtration and with a disinfectant such as chlorine so as to sterilise or partly sterilise the water. It is stated that those adjuncts, a precipitant and disinfectant will not be used, and that the water will be passed through the filters without addition. Under those circumstances it is doubtful if any marked benefit will be derived as to the quality of the water. The life of the sand filters will likely be prolonged. It is probable that there will be further developments in the use of those filters.

No addition is being made to the storage capacity at the works and this is extremely inadequate.

The usual monthly chemical and fortnightly bacteriological examinations have been made.

The chemical examination, a tabular statement of the results of which is given below, shews nothing abnormal. The ammonia and oxygen absorbed figures are frequently higher than one expects in a filtered river water but they are not unusual for the river Dee and there is no evidence that water was abstracted at times of great flood.

In the bacteriological examination the results shew that on all but six occasions the various filters were acting efficiently. Filter number 5 shewed the presence of bacillus coli in 10 c.c. of the water on three occasions and filter number 7 twice. The filtered water reservoir shewed the presence of Coli on only one occasion in 10 c.c. of water. As in former years, recently only bacilli of a strictly "Flaginac" type are regarded as the bacillus Coli.

The following is a tabular statement of the bacteriological findings during the year.

Bacteriological Examination of City Water Supply, 1920.

11

Date.	Unfiltered River Water.		Filter 1.		Filter 3.		Filter 4.		Filter 5.		Filter 6.		Filter 7.		Filtered Water.		Consumers' Tap.	
	Gel. Agar. Coli (1) (2) (3)	B. Coli (3)	Gel. Agar. Coli (1) (2) (3)	B. Coli (3)	Gel. Agar. Coli (1) (2) (3)	B. Coli (3)	Gel. Agar. Coli (1) (2) (3)	B. Coli (3)	Gel. Agar. Coli (1) (2) (3)	B. Coli (3)	Gel. Agar. Coli (1) (2) (3)	B. Coli (3)	Gel. Agar. Coli (1) (2) (3)	B. Coli (3)	Gel. Agar. Coli (1) (2) (3)	B. Coli (3)	Gel. Agar. Coli (1) (2) (3)	B. Coli (3)
1920																		
Jan. 14	4300	340.1X	5	2	—	—	14	8	—	—	12	7	X	—	19	9	18	13
Jan. 21	1900	210.1X	2	5	—	—	8	3	—	—	...	...	...	—	8	5	22	G.O.
Feb. 4	2450	300.1X	4	3	—	...	15	5	—	—	8	3	—	—	13	6	32	7
Feb. 18	2200	13.5X	4	5	—	—	7	4	—	—	Liq.	3	—	—	15	G.O.	Liq.	8
Mar. 3	1800	220.5X	1	2	—	—	3	3	—	—	4	3	—	—	Liq.	G.O.	10	6
Mar. 24	1450	60.1X	1	3	—	—	...	6	—	—	9	5	—	—	Liq.	G.O.	3	G.O.
April 8	700	65.1X	13	5	—	—	6	6	—	—	Liq.	5	—	—	7	4	Liq.	6
April 26	1400	90.1X	13	3	—	—	...	...	—	—	Liq.	5	—	—	Liq.	4	Liq.	10
May 12	2400	130.1X	10	4	—	—	8	G.O.	—	—	Liq.	7	—	—	17	12	Liq.	G.O.
May 26	3600	120.5X	14	7	—	—	11	9	—	—	13	7	—	—	18	G.O.	13	G.O.
June 9	2700	160.1X	11	5	—	—	12	5	—	—	Liq.	G.O.	—	—	9	4	33	6
June 16	9900	520.1X	9	7	—	—	11	5	—	—	Liq.	G.O.	—	—	19	4	26	G.O.
July 7	2500	470.5X	16	5	—	—	10	8	—	—	13	5	—	—	21	Liq.	25	23
July 21	1700	210.1X	5	G.O.	—	—	6	3	—	—	17	4	—	—	23	G.O.	14	G.O.
Aug. 4	1460	395.5X	6	4	—	—	Liq.	4	—	—	41*	45	—	—	Liq.	7	13	G.O.
Aug. 19	1400	580.1X	Liq.	12	—	—	6	4	—	—	...	...	...	—	9	7	11	5
Sept. 8	2600	450.1X	15	...	—	—	7	G.O.	—	—	7	9	—	—	22	8	Liq.	10
Sept. 22	†	140.1X	...	...	—	—	†	G.O.	—	—	†	7	—	—	†	G.O.	†	G.O.
Oct. 7	Liq.	6.5X	Liq.	G.O.	—	—	Liq.	G.O.	—	—	Liq.	G.O.	—	—	Liq.	G.O.	Liq.	G.O.
Oct. 20	3000	2160.1X	8	G.O.	—	—	12	5	—	—	20	9	X	—	18	G.O.	14	9
Nov. 3	4800	290.1X	6	6	—	—	5	7	—	—	...	...	...	—	14	9	15	G.O.
Nov. 18	3900	420.1X	6	6	—	—	10	G.O.	—	—	Liq.	7	—	—	Liq.	15	6	11
Dec. 1	Liq.	1440.5X	11	8	—	—	Liq.	9	—	—	15	G.O.	X	—	16	8	Liq.	G.O.
Dec. 15	Liq.	240.5X	Liq.	18	—	—	Liq.	11	—	—	...	...	...	X	Liq.	G.O.	Liq.	G.O.

†—Material not available.

*—Counted at 48 hours.

G.O.—Agar grown over.

Liq.—Gelatine Liquefied.

X—Positive.

CHEMICAL EXAMINATION OF CITY WATER SUPPLY, 1920.

Date 1920.	SOURCE.	Chlorine.	Free Ammonia	Albumoid Ammonia	Oxygen absorbed in $\frac{1}{4}$ hour	Oxygen absorbed in 4 hours
Jan. 7th	Valentine Court, Upper Northgate St.	1.6	.0020	.0112	.112	.240
Feb. 11th	Davies Buildings, King Street ...	1.4	.0008	.0128	.112	.220
Mar. 17th	Holloway's Court, Crook Street ...	2.0	.0016	.016	.21	.25
April 4th	Greenock Place, Crook Street ...	1.2	.0008	.012	.21	.29
May 12th	Laboratory Tap, Town Hall ..	2.2	.0008	.0104	.09	.19
June 2nd	Athol Place, Crook Street	1.4	.0016	.023	.17	.28
July 1st	7, Goss Street, Tap in house ...	1.8	.0013	.014	.082	.24
Aug. 3rd	Valentine Court, Northgate Street ...	1.03	.0008	.0204	.20	.314
Sept. 15th	Trinity Court, Trinity Street... ..	2.8	.0012	.011	.158	.263
Oct. 13th	Banner's Court, Princess Street ...	1.4	.0018	.015	.21	.31
Nov. 10th	Posnett's Court, Watergate Row ...	1.5	.0016	.0108	.15	.21
Dec. 8th	House No. 2. Edwards' Court, Commonhall Street	1.5	.0018	.013	.145	.268

DRAINAGE AND SEWERAGE.

Apart from the considerable amount of work done in relaying and repairing defective drainage which is referred to under the Chief Sanitary Inspector's Report nothing has been done in the matter of drainage and sewerage during the year.

In my last years report I referred to the fact that the old tips of City refuse made excellent filter beds for sewage. It has been found also that the age of the tip is a matter of little moment. The City refuse is now being tipped near the sewage works on ground prepared by laying properly arranged drains so as to carry off the effluent. The refuse is being tipped to a depth of about 8 feet and covered with a light covering of soil. To shew the excellent quality of the effluent an analysis is given below :—

Analysis of effluent obtained by passing screened and sedimented sewage through a bed of house refuse from 8 to 10 feet deep.

Suspended solids, organic matter and ash negligible.

Oxygen absorbed 4 hours ... 0.36 parts per 100,000

Free and Saline nitrogen ... 0.028 " "

Albuminoid Ammonia 0.034 " "

Nitric nitrogen 2.43 " "

The effluent is colourless, has no sediment and a slight earthy odour.

This compares favourably with the effluent from the filter beds of granite chips which receive the same type of sewage. The following is an analysis of this effluent :—

Suspended solids	4.2 parts per 100,000
Volatile organic matter	3.1 " "
Ash	1.1 " "
Oxygen absorbed 4 hours	1.58 " "
Free and Saline nitrogen ..	0.64 " "

The sample is light grey in colour with a fine dark grey sediment and slight sewage odour.

CLOSET ACCOMMODATION.

Further action has been taken towards the abolition of the few remaining privies in the City. During the year 45 such places have been abolished 42 being converted into water carriage system and 3 into pail closets. There are now only nine privies remaining, situated mostly in rural parts of the City. There are 41 pail closets either in houses built too low to allow access to the sewer or where other serious difficulty prevents their conversion.

SCAVENGING.

The arrangements for scavenging remain the same as last year. The difficulties experienced in 1919 owing to shortage of carts and labour were not repeated and the weekly removal took place much more regularly. The number of ash-pits is steadily diminishing but there is difficulty in keeping the receptacles for refuse in a satisfactory condition. The galvanised iron bin is now falling in price and something more will be done to have them introduced in greater numbers. The method of disposal of the refuse has been temporarily changed to a modification of the old method for the purpose of sewage disposal and the matter is referred to under that heading.

SANITARY INSPECTION OF DISTRICT.

CANAL BOATS ACTS, 1877 AND 1884.

The register kept under the above Acts shews a total of 509 registered at the end of the year. There were no new boats registered. Inspection of 175 boats revealed six contravening the Regulations. The infringements included 17 contraventions and the service of notices was followed by their remedy.

The cabin accommodation in the boats inspected is sufficient for 648 persons but the actual population was 401. This figure included 179 adult males, 105 adult females, 81 children of school age and 36 under school age.

Tabulated particulars of the work done under the Acts will be found at the end of the report.

FACTORY AND WORKSHOPS ACT, 1909.

At the end of the year there were 201 workshops on the register. Sixty-eight of these were concerned with dress, 25 in boot and shoe making and repairing, 41 were bakehouses and 5 were cabinet making and upholstering shops. Defects were found on 60 occasions in 274 visits. The occupiers were notified either verbally or by formal notice and the defects remedied in all cases. The defects found were want of cleanliness, deficient ventilation, insufficient or unsuitable sanitary

accommodation and other miscellaneous nuisances. The special sanitary requirements for bakehouses had to be dealt with in 12 cases. There is still one underground bakehouse in the City but it is not in regular use. Two bakehouses were removed from the register during the year. A tabular statement of the work done under this Act will be found at the end of the report.

HOME WORKERS

There were thirty-three lists of home workers sent to the department during the year, giving particulars of 35 persons so employed. The majority were employed in the manufacture of wearing apparel. The homes were kept under observation and were found to be satisfactory. No infectious disease occurred in this connection during the year.

SCHOOLS.

The school buildings are in a satisfactory condition on the whole but the nonprovided schools in some cases will require attention in the near future. During the year 28 sanitary defects were found and most remedied, a few were outstanding at the end of the year.

The health of the school children was also satisfactory. Although both diphtheria and scarlet fever were more prevalent than in 1919 there was no epidemic and no school suffered unduly.

FOOD.

Under the provisions of the Sale of Food and Drugs Acts, 1875 to 1907, one hundred samples of food were got and handed to the Public Analyst for analysis. The following is a statement of the samples taken :—

Description of Article.					Formally Analysed.	Informally Analysed.
Milk	...	...	...	...	30	2
Butter	...	...	...	...	14	...
Margarine	...	...	...	...	8	...
Cream	...	...	...	...	5	...
Lard	...	...	...	...	5	...
Coffee	...	...	...	...	4	...
Sweets	...	...	...	...	4	...
Arrowroot	...	...	...	...	2	...
Cheese	...	...	...	...	2	...
Custard Powder	...	...	...	...	2	...
Cream of Tartar	...	...	...	...	2	...
Flour	...	...	...	...	2	...
Ground Rice	...	...	...	...	2	...
Honey	...	...	...	...	2	...
Sago	...	...	...	...	2	...
Self-raising Flour	...	...	...	...	2	...
White Pepper	...	...	...	...	2	...
Baking Powder	...	...	...	...	1	...
Black Currant Jam	...	...	...	...	1	...
Egg Powder	...	...	...	...	1	...
Raspberry Jam	...	...	...	...	1	...
Skimmed Milk	...	...	...	...	1	...
Strawberry Jam	...	...	...	...	1	...
Total					98	2

Of the above samples five of butter, four of milk, and one of cream were reported not to be genuine and proceedings were taken against the seller in all cases except in one of the milk samples.

The following statement gives particulars in these cases in which action was necessary :—

<i>No. of Sample. Article.</i>	<i>Result of Analysis.</i>	<i>Result of Legal Proceedings.</i>
1. Milk ...	Contained 5·6 per cent. of extraneous water and 5·0 parts per 100,000 of sediment half of which consisted of dung.	Fined £5 including costs.
40. Milk ...	Contained 2 per cent. of extraneous water and 12 parts per 100,000 of sediment, half of which consisted of dung and was deficient in 1·3 per cent. of Milk Fat.	Fined £5 including costs.
57. Butter ...	Contained 5·3 per cent. excess of water.	Fined £5 including costs.
66. Milk ...	Contained sediment equal to 6·2 parts per 100,000 parts of milk, three-quarters of the sediment consisted of dung.	Case dismissed defendant ordered to pay the costs £1 1s. 6d.
74. Milk ...	The sample contained 4 parts per 100,000 of sediment, one half of which consisted of dung.	Proceedings not instituted
77. Butter ...	Contained an excess of 3·3 per cent. of water.	Fined £1 10s. 15s. 6d. costs.
78. Butter ...	Contained an excess of 3·6 per cent. of water.	Do.
79. Butter ...	Contained an excess of 1·5 per cent. of water.	Do.
81. Butter ...	Contained an excess of 4·1 per cent. of water.	Do.

In the year 1919 we had a number of milks containing added water or having had part of the cream abstracted but no dirty milks. This year the quality of the milk is better, but the cleanliness leaves more than a little to be desired. This condition of things is all the more to be deplored since it is now sufficiently well known that the production of clean milk does not require the outlay of capital, beyond the slightest, or any other great expense. The observance of a few simple rules and the exercise of care in the production is practically all that is necessary. The production of "certified milk" with the additional necessity of keeping a tubercle free herd seems far off in this dairying County of Cheshire. Clean milk however can be produced by attention to detail. Clean shippens, groomed cows, clean milkers milking into an ordinary milk pail

half-covered by a sheet of tin and clean milk vessels is all that is required. Surely the elements of a well conducted business. The better keeping qualities of the milk with consequent less loss from souring would alone repay for the trouble.

The samples of butter found to be adulterated were all taken from stall-holders in the Public Market.

The quality of milk supplied during the year was satisfactory, the average for milk fat being 3.55 and of solids not fat 8.92 per cent.

The following shews the percentage of fat and solids (not fat) in each sample of milk submitted for analysis :—

SUMMARY OF SAMPLES OF MILK ANALYSED DURING THE YEAR 1920.

Sample No.	Fat %	Solids not Fat %
1.	3.42	8.02
2.	3.85	8.75
3.	3.65	8.5
4.	4.05	9.20
5.	3.35	8.65
6.	3.4	8.9
7.	3.55	8.7
8.	10.7	7.85
9.	3.4	8.95
10.	3.7	8.75
23.	3.3	8.95
24.	3.05	9.1
25.	3.1	9.4
26.	3.35	8.7
37.	3.0	8.95
38.	3.5	8.95
39.	3.6	9.25
40.	2.96	8.33
41.	3.22	9.12
43.	3.05	9.15
44.	4.05	9.1
45.	3.1	9.0
65.	4.22	8.63
66.	3.85	8.55
70.	3.9	9.25
71.	4.65	9.25
72.	3.5	9.55
73.	3.42	9.08
74.	4.05	8.95
75.	3.75	9.15
82.	4.8	9.3
83.	5.15	9.25

Six samples of milk were examined bacteriologically in the laboratories of the University of Liverpool. *Bacillus Coli* was found in quantities varying from 0.01 to 1.0 cc. in each sample or in other words from 4 to 400 of this particular germ was found in every tablespoonful of milk. *Streptococci* were found in one sample and *bacillus enteriditis sporogenes* in three. The tubercle bacillus was not found.

The other samples of food examined were found to be genuine and do not call for comment.

DAIRIES, COWSHEDS, AND MILKSHOPS.

There are 23 cowkeepers in Chester. In 17 inspections six contraventions were found, which were remedied after notice had been served.

The contraventions were—want of lime-washing 2, and defective drains 4.

As regards milk-sellers, of which there are 84 in Chester, six were added to the register, two were closed, and two changed hands. Sixty-three inspections of milkshops were made, and 24 contraventions were found, which were remedied after service of notice.

The particulars were as follows :—

Need of lime-washing	...	...	...	...	9
Choked drains	...	...	...	...	4
Defective sink waste pipes	...	...	...	...	2
Defective paving	...	...	...	...	4
Defective water-closet fittings	...	...	...	...	2
Insufficient ventilation	...	...	...	...	2
Dirty utensils	...	...	...	...	1

PUBLIC HEALTH (MILK AND CREAM) REGULATIONS, 1912

The action taken by the Local Authority under those regulations is shewn in the following statement :—

1. Milk and Cream not sold as preserved cream :—

			(a) No. of samples examined for the presence of preservative.	(b) No. in which a preservative was found.
Milk	...	...	31	Nil.
Cream	...	...	1	1

Nature of the preservative in each case in column (b), and action taken under the Regulations in regard to it. This sample contained 0.25 % boric acid and was supplied in a container without the declaration label 1, as prescribed in the appropriate regulations.

The vendor had been previously warned in respect of a similar offence. After an opportunity had been given of explaining the contravention, instructions were given to take proceedings and as a result the defendant was fined £3 including costs.

2. Cream sold as preserved cream :—

(a) Instances in which samples have been submitted for analysis to ascertain if the statements on the label as to preservatives were correct :

(1) Correct statements made	...	2
(2) Statements incorrect	...	Nil
Total	...	2

(b) Determinations made of milk fat in cream sold as preserved cream :

(1) Above 35 per cent.	...	...	2
(2) Below 35 per cent.	...	...	Nil
			<hr/>
Total	...	...	2
			<hr/>

(c) Instances where (apart from analysis) the requirements as to labelling or declaration of preserved cream in Article V. (1), and the proviso in Article V. (2), of the Regulations have not been observed—Nil.

(d) Particulars in each case in which the Regulations have not been complied with and action taken :—

See above under 1. Milk and Cream not sold as preserved Cream.

3. Thickening Substances :—

Any evidence of their addition to Cream or preserved Cream.
Action taken where found—Nil.

MATERNITY AND CHILD WELFARE.

The agencies and arrangements for attending to the health of mothers and children up to five years of age remain the same as last year. Two health visitors are employed by the Local Authority: a Maternity and Child Welfare Clinic is conducted by a voluntary society with their own medical officer and holding two sessions per week. The Local Authority also has a day nursery for children of mothers who have to go out to work. The whole of this work is regulated by the Maternity and Child Welfare Committee and is carried out in close co-operation with the Medical Officer of Health. Records of Children attending the clinic are now complete up to 5 years of age and will be available to the school medical officer when the child attends school. A home help is also employed and is of increasing usefulness. The local authority can send mothers for confinement to the Chester Benevolent Society. It is seldom that advantage is taken of this, but the question of providing maternity beds is under discussion. The provision of dental treatment for nursing and expectant mothers and of milk for necessitous mothers and children are both carried out and have been taken considerable advantage of.

The nineteen midwives practising in the City are all certificated and 7 of them work in connection with the Benevolent Institute, a society for the provision of medical services to women at childbirth. The supervision of the midwives has been on the same lines as formerly. Their registers, instruments and persons are examined at the beginning of the year or when they notify the department of their intention to practise. The senior health visitor who holds the certificate of the Central Midwives Board, also visits their homes at intervals. During the year three midwives were reprimanded for such faults as badly kept charts and defective filling up of notifications of birth,

The following table gives the infant death rate in Chester for the last 16 years :—

INFANT DEATHS PER 1000 BIRTHS.			
1905 — 136	...	1911 — 109	...
1906 — 160	...	1912 — 98	...
1907 — 111	...	1913 — 113	...
1908 — 120	...	1914 — 91	...
1909 — 118	...	1915 — 107	...
1910 — 138		1916 — 91	
		1917 — 83	
		1918 — 89	
		1919 — 84	
		1920 — 69	

Midwives attended 916 of the births or 84 per cent. during the year. They asked for medical aid in 144 cases or 16 per cent of the cases attended by them. The reasons for calling medical help were as follows :—

Feebleness or disease of the infant	...	...	32
Prolonged labour, or unusual presentation	...	...	30
Complications during labour	...	...	14
Complications before labour	...	...	2
Complications after labour	...	...	44
Rise of temperature	...	...	5
Suspected ophthalmia neonatorum	...	...	9
Deformity of infant	...	...	3
At request of patient	...	...	5

144

The Notification of Births Act was carried out in a satisfactory manner. Only 40 or 3 per cent of the total births were not notified within 36 hours of birth. The midwives were at fault in two per cent of their cases and the doctors in 12.

STILL BIRTHS.—Those were 27 in number being 7 fewer than in the previous year and only 2·4 per cent of the total births compared with 4·3 per cent in the previous year. Enquiry into the causes of those births elicited the following information.

Probable cause of still birth :—

Disease or ill health of mother	...	...	3
Accidents of parturition	...	...	9
Accident to mother	...	...	5
Overwork	...	...	1
Twin pregnancy	...	...	6
Prematurity	...	...	1
No satisfactory cause ascertained	...	...	2

Abnormal presentation was a contributory cause of death in 3 cases while previous miscarriage or stillbirth had occurred in the case of 8 mothers.

INFANT DEATHS.—There were 75 deaths of infants under 1 year of age. This gives an infant death rate of 68·7 per 1000 births much the lowest yet recorded in Chester. The previous lowest was in 1917 when it was 83 per 1000 births, and this years figure is no less than 14 better. The rate is 50 per cent better than the average for the quinquennium 1905—1909.

CAUSES OF INFANT DEATHS.—The largest proportion of infant deaths was caused by diseases of development. Prematurity, atrophy or debility and malformations accounting for nearly 43 per cent. of

the deaths. Diseases of the respiratory system accounted for 24 per cent. and diarrhoeal diseases for 16 per cent. of the deaths. It seems that the high toll formerly taken by diarrhoeal diseases has been permanently lessened, and with the advent of better housing, when that materialises, there is little doubt that the rate from respiratory diseases will also fall. Thirty deaths or 40 per cent. of the whole took place in the first month of life. Most of those deaths added to the 27 still-births gives a partial estimate of the loss due to prenatal conditions. Something is now being done to lessen this loss, and if expectant mothers would attend the maternity clinic for advice many of the lives now lost would doubtless be saved.

Ophthalmia neonatorum was notified to the department on nine occasions but on investigation only 7 were found to be really suffering from this disease. In six of the cases both eyes were infected. All seven recovered without apparent injury to the eyes, one being treated at the Royal Infirmary and the others by medical men. The use of collosal silver by the nurse on first seeing those cases seems to do good and the health visitors have now been supplied with this.

Artificial feeding of infants became notifiable in 1919 and 15 notifications were received. Four mothers refused to breast feed their infants and in the case of nine others there was said to be no milk. In view of the success attained in recent years in establishing a flow of breast milk by perseverance and appropriate treatment it is hoped that difficulties will not lead to an abandonment of a real attempt at success. In two cases the health of the mother precluded any attempt at breast-feeding. As in former years, cows milk either fresh or dried is advocated in preference to the numerous patent foods for infants. Fruit juice or turnip juice and cod liver oil are also now very frequently advocated in view of the beneficial effects that they have been shewn to possess in the prevention of rickets and scurvy. When orange juice cannot be easily obtained turnip juice is always at hand and is most readily prepared by mashing a turnip (raw) and pressing it through muslin.

Of the 1069 births registered in Chester 153 were marked by their medical attendant as not requiring to be visited. The remaining 916 were all seen by the health visitors, and after the first visit were classified as follows :—

Those not requiring attention	...	...	...	...	60
Those to be visited by the visitor from the Child Welfare Centre	...	...	...	...	55
Those to be visited by the visitors of the Local Authority	...	...	...	...	801

When the first visit was made, about ten days after birth 840 infants were found to be entirely breast fed and 56 entirely hand fed. There were therefore many cases of artificial feeding not notified. At the end of four months 168 of the breast fed infants had been put on artificial feeding so that at this age 224 or 24 per cent. were hand fed.

Some of the physical disabilities which the children were found to be suffering from were—prematurity, 6 cases ; discharge from the eyes, 9 ; “snuffles,” 6 ; jaundice, 6 ; and deformities, 3.

The condition as to cleanliness was about as usual, that is to say, only moderately satisfactory. During the war much furniture both

useful and otherwise was bought, now a good deal of both kinds is being sold. Unfortunately the long view for a rainy day does not become noticeably popular.

The home help was engaged in six homes during the year and was from two to three weeks in each home. In each case the parents paid part of the cost. During the rest of her time the home help is employed at the day nursery.

Visits were made to 180 expectant mothers and in the presence of any trouble or disability they were advised to see their medical man or to attend the Maternity Clinic.

Under the Supply of Milk for Expectant and Nursing Mothers and Infants' Order, grants of milk were given in 157 cases. All milk is given free so as to avoid the need for recovering small sums of money, the amount given varying with the needs of the case. Last year the moulder's strike was the chief cause of the need for giving milk, and this year there was little need for help until unemployment became common, since when a large number of grants have been given. Where the help that this affords seems to be insufficient the case is brought to the notice of the Guild of Social Welfare or the Relieving Officer. In this way 24 cases were referred to the Guild and 8 to the Relieving Officer.

In the course of their work, the health visitors made 4564 visits to homes. Those were made up as follows :—

Primary birth visits	...	...	...	...	...	916
Subsequent visits	...	...	...	...	...	2168
Visits to children between 1 and 5 years	...	...	...	...	...	1300
Visits to expectant mothers	...	...	...	...	...	180

The Visitors are in constant touch with the Medical Officer of Health in every department of their work.

Thirty cases of sanitary defects were notified by them during the year. They also report that overcrowding is unabated, but as in last year nothing can be done as there is not a vacant house in the City.

The scheme for giving dental treatment to expectant or nursing mothers is now in being and 20 such cases have received treatment. In three cases the denture was given free, and in the others one half or one third was paid by the recipient. In each case the mother is seen by the Medical Officer of the Maternity Centre, after the Dentist has reported, and certifies that the treatment proposed is likely to benefit the patient.

The Child Welfare Centre continues to hold two sessions per week, the days being Mondays and Thursdays from three to about five o'clock. Arrangements have now been made for each child to see the Doctor on its first visit to the Centre, and thereafter as occasion requires. An attempt is made to see each child up to 5 years once each quarter.

The following is the record of attendances made during the year—

Number of babies attending	...	...	...	339
Number of visits of babies	...	...	...	1968
Number of children attending	...	...	...	213
Number of visits of children	...	...	...	1341
Number of expectant mothers attending	...	...	...	69
Number of visits of expectant mothers	...	...	...	272

The Society's Medical Officer examined and advised on the treatment of 171 babies, holding 479 such consultations. Forty older children and thirty-six expectant mothers were likewise seen. Arrangements have now been made and are in operation by which every child whether ailing or not is seen by the Medical Officer and a record kept of its condition.

The Baby Centre also keeps a clothing stall open, at which infant garments can be purchased cheaply. This is one of the most popular activities of the Society. There also is held a Sewing Class at which cutting-out is taught, and it is hoped other activities may be started during the coming autumn. The Society is much in need of funds to carry on its very excellent work.

The Day Nursery was open on 284 days in the year, and 4640 attendances of children were made. It is limited as far as possible to the children of those mothers who require to go out to work, and to children of ages of 2 months to five years. The attendances of children attending comprised 1711 under one year, 2139 between one and three years and 790 between three and five years. An attempt is made to teach the children cleanly habits and good manners but little can be attempted in the way of organised games. On all suitable occasions the children play and sleep in the large playground provided.

As part of the Child Welfare work a lantern lecture was held in July, the subject being "our Mothers and Babies." Seventy slides were shewn and Dr. A. M. Brown the Assistant Medical Officer of Health acted as demonstrator.

Seven cases of puerperal fever were notified during the year compared with two in the year before. The significance of the increase is lessened when one considers the much larger number of births, 1091 compared with 759. All the cases occurred in the practice of midwives. On notification the case is visited and offer of treatment in the Isolation Hospital is made. The midwife is restricted to the particular case until recovery and she and her clothing and implements are disinfected before she resumes practice. In one case attended by a midwife from Liverpool the nurse left in the middle of the trouble to attend another case. The Medical Officer of Health of Liverpool was at once written to and she was dealt with by him. Two of the cases died one in the Home of the Chester Benevolent Institution and one at home.

WORK OF THE MUNICIPAL LABORATORY—In connection with the control of infectious disease 1,074 examinations of various specimens were made. Those comprised the following—

<i>Examination for</i>		<i>Positive.</i>		<i>Negative.</i>		<i>Total.</i>
Diphtheria ...	...	88	...	625	...	713
Tuberculosis	...	71	...	132	...	203
Gonococcus	...	44	..	36	...	80
Widal reaction	...	9	...	11	...	20
Fæces and urine for bacillus typhosus		1	..	16	...	17
Ringworm ...	...	13	...	6	...	19
Meningococcus	...	2	...	8	...	10
Malaria	...	0	...	1	...	1
Other specimens	...	0	...	11	...	11
Totals	...	<u>228</u>		<u>846</u>		<u>1074</u>

In addition to the above a monthly examination of the City Water Supply was made—12 samples of the water from each filter in use and from the filtered water reservoir and from a consumer's tap, and also the raw river water were examined every fortnight, making 209 bacteriological investigations.

PREVALENCE AND CONTROL OF INFECTIOUS DISEASES.

The history of infectious diseases during 1920 resembles closely that for the previous year; there has been no epidemic although the notifications of cases of certain diseases have increased somewhat. The total number of notifications are fewer, 348 for 1920 and 395 for 1919, but the difference is more than made up for by the fact that measles is no longer notifiable. There has been a distinct increase in the number of scarlet fever and diphtheria cases notified and also the cases of pneumonia. The only figure which is noticeably smaller is that for influenzal pneumonia.

SCARLET FEVER.—It has been recognised for the last few years that an epidemic of scarlet fever was due ; it has still not come but it threatens. The notifications which in 1918 were 27, rose in 1919 to 95 and this year they are 115. It is somewhat remarkable that a severe epidemic has not occurred already. Cases of scarlet fever are discovered in all stages of desquamation attending school and going about freely yet it has so far proved the exception to be able to connect one of those ambulatory cases with any other. A large part of the population although they have never had scarlet fever must be immune to the poison in its present virulence. In the great majority of cases the severity is of a very mild type. Cases sent in to hospital on the second or third day commonly have no rash, a normal temperature and a slightly papillated tongue and perhaps slightly enlarged glands. The history of sore throat and rash is often uncertain and generally those are of very short duration. By the second day it is difficult to say that the illness was not only a slight digestive upset. Watching those cases in hospital the most noticable thing is that some of them do not desquamate as a scarlet fever patient does. Some desquamate fairly normally, perhaps cases where the rash has been fairly distinct, others shew only a little branny desquamation as in German Measles and others again have shewn no signs of desquamation although this has been carefully looked for.

In those last cases one can get a certain powdery desquamation by rubbing the skin but of ordinary desquamation there apparently is none. The question naturally arises are they cases of scarlet fever? Although kept in a scarlet fever ward and no precautions taken as to spread of fever infection they do not take the disease. Again some of those cases can communicate scarlet fever to others. An adult was admitted to hospital with a history of a slight transient rash about the chest and very slight sore throat. On admission there was nothing to be seen but a slight papillation of the tip and edges of the tongue. She was discharged in the fifth week of illness there having been no desquamation and no other evidence of scarlet fever. Three days after a return case was admitted from the same house and the following day other two. It seems certain that a deal of scarlet fever infection is going about in schools and elsewhere undetected and undetectable and yet comparatively few people are taking the infection. Although the

great majority of the cases are of this mild type a few cases are severe from the first with pronounced throat symptoms and toxæmia and we had one death during the year.

Diphtheria has also been more prevalent during the year. The notifications for the last three years have been 49, 43, and 73. The type of the disease which had been severe has been distinctly less so, and there has been a comparative absence of serious complications. Rather more than half the notifications were of children of school age but no single school has had an undue number of cases. The bacteriological examination of the throats of all contacts and if need be the nose also, has been continued and the detected infections dealt with. During the year 713 swabs have been examined of which 88 were found with the diphtheria bacillus present.

ENTERIC FEVER.—There were seven cases of enteric fever notified during the year. Two of those cases were subsequently rediagnosed as suffering from other conditions. Of the five remaining cases two were nursed at home, one in the Royal Infirmary and two in the Isolation Hospital. Infection in one case was supposed to be due to eating cockles but no other illness was traced to this source at the time. In the case of another patient the infection had been contracted when travelling in mid Wales but no probable source of infection could be found in the other three cases, although in one of these cases the possibility of infection through a carrier amongst the char-a-banc visitors could not be excluded.

INFLUENZA & INFLUENZAL PNEUMONIA.—Influenza not being a notifiable disease we have no means of knowing the extent of its prevalence but judging by the number of post influenzal pneumonia's which have been notified it has not been severe. In nine months of 1919, 43 cases of this disease were notified and in the whole of 1920, 5 cases only.

SMALLPOX.—Towards the end of the year a case was notified as one of smallpox. On examination of the patient the true character of the disease was found to be very doubtful and a few days observation shewed definitely that the illness was due to another condition. The patient had been living in a common lodging house in Chester and while the diagnosis was in doubt every precaution against the spread of the trouble was taken. He had been travelling the neighbourhood in his daily occupation and the medical officers in the various districts concerned were notified. His belongings were disinfected as also the lodging house, and the inmates, about 40 in number, were revaccinated mostly with success.

One case from an outside district was treated in hospital during the year. This was the case of a boy who had been on holiday in Glasgow where smallpox was prevalent. He developed typical smallpox a few days after his return home. He recovered bearing abundant evidence of his experience.

CEREBRO-SPINAL FEVER.—One case of cerebro-spinal fever was notified. The case was one of a child with typical symptoms of the disease. The diagnosis was confirmed by bacteriological examination. He made a good recovery. Careful enquiry failed to trace other cases of a similar nature in the City. The most likely source of

infection was through the father who worked in Liverpool going backwards and forwards daily. A bacteriological examination of the naso-pharynx of all the inmates of the house failed to reveal a carrier of the disease. One other case was treated in hospital, from an outside district, also a typical case confirmed bacteriologically. He unfortunately died. One case of encephalitis was notified. The patient gave a history of a long continued illness and had been attending the Infirmary for some time before her final symptoms declared themselves. Her symptoms were not typical and the patient was too ill when notified either for a careful examination or for removal to hospital, and died within a few days. No trace of illness of a similar kind could be found.

HOSPITAL ACCOMMODATION.—And patients treated during the year. The number of beds available for infectious diseases apart from tuberculosis and smallpox is 64. In the separate smallpox hospital there are ten beds. In April of the year an extra eight beds for tuberculous disease were provided by transferring the old observation block to the Pavilion field and altering it so as to make it suitable for its new use. We have now twenty beds for the treatment of tuberculous disease at Sealand. Those have been constantly occupied. In last years report I mentioned the strained accommodation in the administration block. It has been very difficult with the staff which can be housed to provide for the extra time off duty and shorter hours which are being introduced in the nursing profession.

During the year 408 patients were treated in hospital of which 255 were City cases. Particulars of those cases are given below :—

Disease for which admitted.	No. of cases.	No of days in Hospital.	Deaths.
Scarlet Fever	181	42	1
Scarlet Fever and Diphtheria	8	44	0
Diphtheria	120	27	7
Typhoid Fever	12	21	4
Cerebro—Spinal Fever ...	2	21	1
Smallpox	2	47	0
Measles	3	17	0
Pneumonia	2	14	0
Verminous conditions ...	4	1	—
Scabies	3	11	—
Tuberculous diseases ...	71	108	11

Of the Scarlet fever cases 113 belonged to the City and 68 to outside authorities. The death was that of a City child whose mother had been sitting up with it expecting death from marasmus before it's admission to hospital.

Of the combined scarlet fever and diphtheria one case belonged to the City and 7 to other Authorities. Seventy diphtheria cases were our own and 5 of the typhoid fevers. One each of the cerebro spinal and smallpox admissions were Chester cases. Of the 71 tuberculous cases 52 belonged to the City.

Nothing beyond what has already been said requires stating about the scarlet fever and diphtheria cases.

Of the 5 cases admitted as typhoid fever from the City two were re-diagnosed as other conditions. Of the seven cases from outside

authorities three were re-diagnosed as due to other conditions one of which was transferred to the Chester Royal Infirmary for operative treatment.

The smallpox case admitted from the City after notification proved to be due to another condition. The case from outside was a well marked case in a boy who had not previously been vaccinated, although rather badly marked he made a good recovery. The City case of cerebro-spinal fever was also a true case and recovered well.

TUBERCULOUS DISEASES.—Those diseases occurred with average frequency, there being a slight increase in the number of non-pulmonary cases and a slight decrease in the pulmonary type. The deaths were noticeably fewer being 36 compared to 53. Steady but slow progress is being made in anti-tuberculosis work. Patients are showing a more intelligent interest in their treatment, and a greater willingness to carry it out. There remains however much educative work to be carried out in this direction before really satisfactory help can be depended on from the patient. Conditions will be somewhat improved when the housing conditions are more satisfactory but that time seems almost as far off as ever. I would advise however against building too great hopes on the improvement likely to take place in the health of the people on the introduction of better housing. It is necessary to live healthily even in the best environment, and the difficulty of teaching this to the individual is one of the most pressing and troublesome questions in public health.

The scheme of the Local Authority for the treatment of tuberculosis remains the same as last year with the exception that eight additional beds have been provided at the Isolation Hospital Pavilion for the treatment of second and third stage cases. We have now at the Pavilion, Sealand Road, twenty beds for City tuberculosis patients and six for County cases. At Kingswood Sanatorium an arrangement is in force for the admission of early cases according to accommodation available, and it is seldom that patients have to wait unduly for a bed. There is also an arrangement with the Liverpool Convalescent Home, Heswall, for the admission of non-pulmonary tuberculosis in children. It was intended that this provision should be extended by the provision of four beds at Leasowe Hospital extension, but the financial situation has postponed this addition for the time. The beds at our disposal have been fully occupied during the year, there having been 80 admissions to various institutions. The hours of attendance at the Dispensary remain the same 11 o'clock on Monday, and 11 and 6 on Thursday. During the year 225 patients attended out of a total of 252 tuberculosis patients on our roll. Those patients included 91 new examinations of which 40 were new cases, 20 suspects, and 31 contacts. The attendances at the Dispensary numbered 1371, and the Nurse made 1,775 visits to patients homes including 438 visits to the homes of discharged soldiers. The Nurse is in daily consultation with the Medical Officer, and it is very largely due to her constant visits and encouragement that patients shew a greater interest and willingness to follow advice as to conditions of living.

The following tables shew the number of notifications received during the year in detail and particulars of the new cases admitted to the Dispensary.

Public Health (Tuberculosis) Regulations, 1912.

Summary of Notifications during 1920.

		Number of Notifications on Form A.										
Age Periods.		Primary Notifications.										Total Notifications (i.e. including cases previously notified by other Doctors).
		0 to	1 to	5 to	10 to	15 to	20 to	25 to	35 to	45 to	55 to	Totals.
		1	5	10	15	20	25	35	45	55	65 and upwards	
Pulmonary Males	...	0	0	0	1	1	6	10	4	5	0	29
Pulmonary Females	...	0	1	1	2	2	2	6	4	1	0	17
Non-Pulmonary Males	...	0	0	0	0	0	0	0	0	1	0	2
Non-Pulmonary Females	...	1	0	2	2	1	1	0	0	0	0	8
Totals	...	1	1	3	3	4	9	16	8	7	2	56
27												

		Number of Notifications on Form B.					No. of Notifications on Form C.			
Age Periods.		Primary Notifications.			Total Notifications (i.e. including cases previously notified by other Doctors).		Poor Law Institutions.	Sanatoria	Pavilion. Sealand.	
		Under 5	5 to 10	10 to 15						
		Totals.								
Pulmonary Males	...	0	2	0	2		5	11	34	
Pulmonary Females	...	0	0	0	0		4	4	22	
Non-Pulmonary Males	...	0	0	0	0		0	0	0	
Non-Pulmonary Females	...	0	3	1	4		0	0	0	
Totals	...	0	5	1	6		9	15	56	

NEW CASES ADMITTED TO DISPENSARY DURING 1920.

INSURED.

Age periods.	0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and upwards	Totals.
Pulmonary Males ...	0	0	0	0	0	3	5	4	5	0	0	17
Pulmonary Females ...	0	0	0	0	1	1	3	1	1	0	0	7
Non-Pulmonary Males...	0	0	0	0	0	1	0	0	0	0	0	1
Non-Pulmonary Females	0	0	0	0	0	0	1	0	0	0	0	1
Totals ...	0	0	0	0	1	5	9	5	6	0	0	26

NON-INSURED.

Age periods.	0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	35 to 45	45 to 55	55 to 65	65 and upwards	Totals.
Pulmonary Males ...	0	0	0	0	0	0	0	0	0	0	0	0
Pulmonary Females ...	0	0	0	1	0	0	0	0	0	0	0	1
Non Pulmonary Males...	0	1	3	0	0	0	0	0	0	0	0	4
Non-Pulmonary Females	0	2	5	2	0	0	0	0	0	0	0	9
Totals ...	0	3	8	3	0	0	0	0	0	0	0	14

Total Number of Attendances, 1371.

Total Number of Patients Attending, 225.

Total Number of Contacts Examined, 31.

The scheme for the control and treatment of venereal diseases has not been altered. The days and hours of attendances are Mondays and Wednesdays 5 to 7 p.m.; Thursdays 1 to 3 p.m.; and Saturday 12 to 2 p.m. This arrangement suits those from outlying districts served by the scheme and also those who are at work. In addition to those sessions, when a medical man is in attendance for appointments and the treatment of new cases, the clinic is open at all times through the day when attendants are in attendance for the purpose of irrigations. During the year 65 new cases belonging to Chester attended the clinic, 31 of syphilis, 5 of soft chancre and 29 of gonorrhœa. In addition 8 cases attended for conditions other than venereal. Those patients made 778 attendances at the out-patient clinic and in the in-patient department the in-patient days were 445. This last number seems large in comparison with the attendances at the out-patient clinic. Those diseases can, as a rule, be treated under out-patient conditions and to adopt in-patient treatment for them is much more expensive. The reason for the method adopted I understand is philanthropic but something it is hoped will be done to lessen the extent to which it is practised. In the out-patient and in-patient departments together 298 doses of Salvarsan substitutes were given.

Here, as in so much else of Public Health, Education forms the basis of progress, and in this particular case education is particularly difficult. It seems evident that the advocacy of self disinfection will come but it will be advanced with widely different degrees of faith. If done at once and with extreme care and adequate knowledge the method is no doubt to a considerable extent efficacious. In the absence of those qualifications there are grave risks. There is also the danger that the process will be used for purposes of cure for which it is quite useless. With all its risks it is preferable to the preventative packet. The establishment of ablution centres is being tried in a few places but they are still experiments in civil life and for a City the size of Chester they seem comparatively useless. The absence of need for any packet or disinfection is the ideal to be reached and education is the only path. Education however presents exceptional difficulties, and while we can all dispute the text "where ignorance is bliss 'tis folly to be wise" it is not wise to try to dissipate the ignorance under every circumstance of time and place. A bumper house at a cinematograph show is not evidence of good done. The audience will be largely composed of the idle curious and un-teachable, and if there is one there who is in a position or a condition to learn will he carry away anything like a true picture of the dangers? To many, in the "blissful" state of ignorance, the mention of the subject stimulates interest in something hitherto of no moment to them; from interest it is but a step to experiment. Here is the importance of time and place and the personality of the teacher. Probably the most fertile method of procedure would be for experts to teach those who are most likely to be fit to teach in their turn, using their knowledge of the psychological moment. Something in this line will probably be the procedure of the local committee for the coming autumn and winter.

Our efforts will have to be strengthened by further legislation in the near future. At present a large proportion of those undergoing treatment at the clinic stop attending before their treatment is complete. At the Chester clinic in the year under review no less than 49 out of

69 so ceased to attend, that is only 20 out of 69 were cured and properly discharged. Again it ought to be a criminal offence to knowingly give the disease to another. Already a movement is taking place to get the law amended in the lines indicated.

FOOD INSPECTION.

In connection with the examination of food during the year, the following visits were made to premises where food is manufactured, stored, or exposed for sale :—

Visits to Slaughter-houses	...	...	358
„ Butchers' Shops	...	..	226
„ Fishmongers' Shops	...	...	253
„ Other Food Shops	...	...	338
Total			1175

There are 12 Slaughter-houses in the City, 6 registered, and 6 licensed. They are kept in a fairly clean condition, but the distances between the various premises and the fact that there is no fixed time for slaughtering makes efficient control an extremely difficult matter. The premises are all small, and the slaughter-house and cooling room are combined, making it hardly possible to prevent soiling of the cooling meat during the progress of subsequent slaughterings. The effective inspection of meat sold in the City is also made difficult by the number of slaughter-houses just outside our boundaries, in districts where there is very little meat inspection carried out. Seven butchers selling meat in the City are thus not subject to inspection except in their shops. A public slaughter-house would be a distinct advantage to the community and to the butchers.

In the course of the year it was found necessary to condemn the following articles found unsound and unfit for the food of man. In several instances the attention of the Department was called to the condition of the food and request made for examination.

BEEF	...	...	Carcases	...	...	...	22
			Portions of Carcases	...	...		4
			Portions of Imported Carcases	...			7
MUTTON	...	...	Carcases	...	...	...	43
			Portions of Carcases	...	...		7
LAMB	...	...	Carcases	...	...	...	29
PORK	...	...	Carcases	...	...	...	2
VEAL	...	...	Carcases	...	...	...	1
FISH	...	...	Kippers	...	...	(Boxes)	8
			Smoked Haddock Fillets			„	7
			Cod	...	...	„	2
			Herrings	...	...	„	2
			Mackerel	...	...	„	2
			Hake	...	...	„	1
			Salmon	...	...	... (Tins)	28
			Findon Haddock	...		(Boxes)	1
TURKEYS	...	...	...	..	...	...	10
RABBITS	...	...	Imported	...	...	(Boxes)	1
			Home Killed Rabbits			„	40

CORNED BEEF	...	...	...	...	(Tins)	20
CONDENSED MILK	...	...	...	...	"	98
CONDENSED MILK						
AND COCOA	...	...	...	...	"	4
RASPBERRY JAM	...	...	...	...	"	5
BACON ...	...	Boxes	...	...	...	2
		Portions	...	...	...	6
HAMS ...	...	...	...	...	...	3
TINNED PEACHES	...	...	...	...	...	2
PEARS ...	...	Tins	...	...	...	1
PINEAPPLES	...	"	...	...	...	1
TOMATOES	...	"	...	...	...	40
SAUSAGE	...	"	...	...	...	1
EGGS ...	...	Scores	...	...	...	10

The estimated weight of the food condemned was :—20,7 7/8 cwt. or 9 tons., 5 cwt., 2 qrs.

The following statement shews the instances and particular causes rendering the condemned articles unfit for food :—

Tuberculous—Beef (Carcases)	...	...	...	18
" (Portions of Beef)	...	...	...	3
" Pork (Carcases)	...	...	...	2
Result of Accident—Beef (Carcase)	...	...	...	1
Septicæmia—Beef (Carcase)	...	...	...	2
Septic Metritis—Beef (Carcases)	...	...	...	1
Malignant Tumour—Beef (Carcase)	...	...	...	1
Dropsy—Mutton (Carcases)	...	...	...	2
Umbilical Pyæmia—Calf (Carcase)	...	...	...	1
Abcess—Imported Beef (Portions of Carcase)	...	...	...	2
Contusion—Imported Beef (Portion of Carcase)	...	...	...	1
Decomposition—Imported Beef (Portions of Carcases)	...	...	...	3
" Mutton (Carcases)	...	...	...	41
" Mutton (Portions of Carcases)	...	...	...	7
" Lamb (Carcases)	...	...	...	29

Of the Meat condemned, apart from Fish and other forms of food, 63·4 per cent. was condemned for tuberculous disease. The other great cause of condemnation of food was decomposition due in most cases to delay in transit.

OTHER FOODS.

The condition of bakehouses in the City has greatly improved in recent years. There is now only one underground bakehouse, and it is only in occasional use.

The old type of oven is also giving place to modern apparatus, and the substitution of movable troughs and benches for the old fixed structures, together with improved floors and walls has made a marked improvement in many bakehouses in the City.

There are still places in Chester where food is prepared, which are difficult to keep in a satisfactory state owing to the cramped nature of the premises for the business carried on.

REGISTRATION OF WHOLESALE DEALERS IN MARGARINE AND MARGARINE CHEESE.

(Sale of Food and Drugs Acts, 1887 and 1899).

The number of Wholesale Dealers in Margarine remains the same, 15 in number. One dealer has given up business, and one has started. In each case the premises are satisfactory.

FRIED FISH SHOPS.—There are 23 such shops carrying on business in Chester. They form an important source of food supply to the people and their supervision is a matter of importance and considerable trouble. Want of cleanliness is a common fault and formed the basis of action in several instances during the year. Nuisance arising from the storage of fish boxes on the premises was another cause of complaint and unsatisfactory arrangements for carrying off fumes of cooking is not uncommon.

RAG FLOCK ACT.—Four samples of Rag Flock were taken during the year and examined. They were found to conform to the standard set down in the Act.

COMMON LODGING HOUSES.—There are six common lodging houses in the City, they having 34 rooms giving accommodation to 180 men. They were visited 46 times and 70 contraventions of the bye-laws were found. Those were all matters of want of cleanliness and formed the basis of action. Two of the lodging houses were dealt with particularly in this connection and new bedding for 70 beds was provided.

SANITARY WORK.—Sanitary surveys were made, by request, of the drainage systems of five houses. In three of those cases a complete re-construction of the drains followed and partial re-construction in the other two.

The supervision of re-construction or repair of drainage systems of existing buildings continues to take a large amount of time. In the ordinary course of work 224 smoke tests were applied. In 89 cases the drains were found to be so defective as to require complete re-construction. The need for close supervision of the work in drainage construction is shewn by the fact that in testing new systems 216 water tests shewed 24 per cent. as defective.

Much other sanitary work has been done of a miscellaneous nature which the following summarises. :—

Number of complaints received in respect of nuisances	...	...	...	...	277
Number of rooms disinfected after infectious diseases	...	...	...	...	251
Number of reports and investigations after infectious diseases	...	...	...	...	259
Number of visits in respect of nuisances	...				932
Matters referred to City Surveyor	...				53

Number of tests applied to drains—

(1) Water	...	...	...	216
(2) Smoke	...	...	...	224
(3) Colour	...	...	...	45
Number of drains found defective	...	...	...	89
Number of drains reconstructed	...	...	...	143
Number of privies abolished	...	...	...	45
Number of ashpits abolished	...	...	...	57
Number of ashbins provided	...	...	...	73

OFFENSIVE TRADES.—There are only three of those and none are carried out on a large scale. They comprise one tripe dresser, one fat boiler and refiner and one hide and skin depot. In the case of the fat refinery several complaints were received of offensive smells. The tracing of the exact source of the nuisance proved a matter of considerable difficulty, and the place and processes were examined under varying conditions. Finally it was decided that alterations should be made in the type of certain parts of the machinery and to make certain repairs and this work was in hand at the end of the year.

Further progress has been made in the abolition of the old uncovered ashpits 57 having been removed during the year and galvanised ash bins put in their place. Very much still remains to be done in this matter and it is being dealt with as a part of house re-construction or repair.

We have now abolished all the privies in the City proper, but there are still 9 in the surrounding country districts of our area. During the year 45 such places have been demolished and a properly constructed water carriage system put in place. There are still 41 pail closets all in houses built too low to allow access to the sewer. Some of those houses will be demolished when the housing difficulty is somewhat eased.

The supervision of Courts continues to be an important part of the work of the department, and in summer they receive special attention and the house refuse is removed bi-weekly instead of once a week. During summer also manure pits which are emptied once a week are in addition sprayed with a disinfectant with good results in the suppression of flies.

Part of a consignment of shaving brushes, said to be infected with anthrax reached the City during the year, their presence being notified to us from Liverpool. Those were at once traced, surrendered, and destroyed.

There were nine nuisances from smoke reported during the year which were remedied without taking proceedings.

The following is a summary of the number, and a statement of the nature of the inspections made throughout the year :—

<i>Description.</i>				<i>Number of visits.</i>
Dwellings	...	...	...	5682
Courts	...	...	...	406
Schools, Drainage, Etc.	...	...	...	64
Stables and Manure Pits	...	...	...	466
Canal Boats	...	...	...	175

<i>Description.</i>	<i>Number of visits.</i>
Factories and Workshops ...	274
Dairies, Cowsheds and Milkshops ...	80
Slaughter-houses ...	358
Butchers' Shops ...	226
Fishmongers' Shops ...	253
Various Other Food Shops ...	338
Offensive Trades ...	108
Smoke Observations ...	45
House to House (District Inspection)	750
Common Lodging Houses...	46
	<hr/>
	9271

The following Notices were served :—

Intimation Notices	...	223
Statutory Notices	...	68
Rat Order Notices	..	2

The service of these Notices resulted in the abatement of 803 nuisances, and at the end of the year there were five outstanding.

In many cases it was found difficult to get nuisances abated within a reasonable time owing to the high cost of labour and material, and it became necessary to enforce the abatement by instituting proceedings against the owners of 4 dwellings and the occupier of one other. These proceedings resulted in an Order being made by the Court in respect of three premises, and in two others the nuisances were abated before the day set for the hearing of the case. In one instance, where the Magistrates made an Order, it was not complied with. Proceedings were then instituted against the defendant for contravening an Order of the Court when a fine of £5 was inflicted. In each case where proceedings were instituted, the defendant paid the costs.

SANITARY ADMINISTRATION.

The Staff of the Department consists of—

1. The Medical Officer of Health and School Medical Officer.
2. The Assistant Medical Officer and Assistant School Medical Officer.
3. Chief Clerk.
4. Assistant Clerk.
5. Chief Inspector of Nuisances.
6. District Inspector of Nuisances.
7. District Inspector of Nuisances.
8. Assistant District Inspector.
9. Labourer.

FEMALE STAFF.

10. School Nurse.
11. Health Visitor.
12. Health Visitor.
13. Tuberculosis Nurse.

There has been no alteration in the administration of the department which remains as in 1919. The staff is fully employed and it is with considerable difficulty that the routine sanitary work is adequately done and the necessary housing surveys made. The trend of Public Health work is rendering the female staff of increasing value as the education of the individual is becoming of greater importance.

HOSPITAL ACCOMMODATION.—There are 64 beds at the Isolation Hospital for the treatment of infectious diseases. We are under agreement to take a limited number of cases from certain outside Authorities but the accommodation is sufficient. At about half a mile distant the Smallpox Hospital has ten beds and sufficient administrative accommodation. It is connected by telephone to the main building.

In a field adjoining the Isolation Hospital there are two Pavilions for the treatment of tuberculous disease. At the beginning of the year there were 18 beds but an additional 8 were added during the year. There is a growing difficulty in administration at the Isolation Hospital owing the shorter hours worked by nurses and the necessity of giving more off time. The administrative block is occupied to its utmost and other provision will have to be made for additional staff when that becomes imperative.

There are two Local Acts: The Chester Improvement Act, 1845, and that of 1884, with provisions of a Public Health nature. It has not been necessary to take action under those Acts in any Public Health matter. The various Public Health acts are in operation, except the Act of 1907, which has not been adopted.

The arrangements for the bacteriological examination of suspected infective material has already been dealt with. No diphtheria patient is discharged until a negative brushing has been obtained from the throat or throat and nose, as the case may be. The spit of tuberculosis patients is examined as a confirmation of diagnosis in certain cases, and as a guide to treatment. Typhoid fever patients are not discharged until two specimens at an interval of about a week have failed to shew the presence of the bacillus typhosis.

HOUSING.

(1) GENERAL CONDITIONS.—The actual condition as to housing has not improved in any way during the year. The probability is that the estimate, made in 1919, of our need of 800 new houses will be an under estimate.

There was not then and is not now any very reliable estimate of our population, but it is certain that the increase has been at a greater rate than for the years before the War. In view of the early publication of populations as taken at the recent Census no good purpose would be served by making an estimate now which might be wide of the mark. It is sufficient at present to state that the estimate of 800 houses in 1919 will prove to be too low.

At the end of the year some of the houses being built under the Building Scheme of the Local Authority were nearing completion but none were occupied. Also a few houses being built by private

enterprise were in like condition. The position of the Local Authority's Scheme is that of three contracts for the erection of 138 houses, the first is practically completed, the second is well advanced, and the third contract is not yet settled, while the lay out plan for another 145 houses is ready for sanction. A site has been bought which will take a further 200 and negotiations are in progress for a fourth site which will take something over 200 houses.

Overcrowding is still very marked and still no action can be taken to lessen it as there are no vacant houses. There has been a certain emigration owing to unemployment but this has not been to such an extent as to materially lessen the overcrowding. There is no hope of taking any effective action in this matter for some considerable time as the housing programme shews no signs of overtaking our needs.

The overcrowding is very serious, and instances of two or even three families in a house are numerous, while newly married couples are compelled to live in one room without any of the ordinary conveniences or amenities of life. It is a very urgent necessity to press on with the building of houses.

(2) FITNESS OF HOUSES.—In general the houses in the district fall short of the standard indicated in the Housing Acts in the want of proper ventilation, e.g. windows not made to open, the want of a food cupboard and dust bin and not having a water supply in the house, but a great majority of the defects are dilapidations which ought to be remedied as they occur to keep the house in good repair. Either under the Public Health or Housing Acts or Inspection of District Regulations, 1025 houses have been examined as to their fitness, and rather more than half found not in all respects reasonably fit for human habitation. Informal action, either through interviews or correspondence with the owners, resulted in 237 of those being made satisfactory. In the case of 41 houses notices were served under section 28 of the Act, 1919, and the owners did the necessary work in 23 instances. In the case of 4 houses the Local Authority had to do the work in default of the owner. The Local Authority has had to undertake the work in a considerable number of cases but those 4 houses were the only four under this heading finished at the end of the year.

Under the Public Health Acts 350 houses were dealt with and at the end of the year 345 had been rendered fit by the owners. Under those Acts it had not been necessary for the Local Authority to do the work in any instance although in 5 cases summonses had to be issued. Arrangements have been made in one or two instances for the most pressing faults to be remedied at once leaving the minor matters for further action.

The great difficulty in getting a contract price and the high cost of material has rendered this course necessary and has been the cause of much delay in progress. In the case of 15 houses it was necessary for the Local Authority to undertake the work, but at the end of the year this had not been finished. Three houses in which Demolition Orders had become operative have been rebuilt. The conditions as regards water supply, closet accommodation, and refuse removal as they affect housing are satisfactory. Much has been done in recent years to pro-

vide adequate closet accommodation and further action is taken where necessary. Each house has a water supply within reasonable distance and an inside supply is being provided as opportunity occurs. Refuse removal is carried out weekly and has been more regular this year than last. The proportion of properly covered and impervious bins is still far too low but here again the high cost is a serious obstacle to progress.

UNHEALTHY AREAS.—In submitting our scheme of housing reform it was originally intended to take action only under Part II of the Act of 1890. It has been found however that one small area would be more justly and conveniently taken as an area under Part I., and the necessary action will be taken during the present year.

BYE-LAWS.—We have no Bye-laws relating to housing or to houses let in lodgings or to vans, sheds, &c. Such Bye-laws are required.

STAFF ENGAGED ON HOUSING WORK.—None of the Staff has been exclusively employed in housing duties during the year. The Assistant Inspector first examines the houses which are then carefully gone over by the Chief Inspector who notes the defects and the required remedies. The Medical Officer of Health examines each house in view of the report submitted prior to laying the matter before the Committee.

APPENDICES.

HOUSING CONDITIONS.

STATISTICS.—Year ended 31st December, 1920.

I.—GENERAL.

	Civilian.	Total.
(1) Estimated Population... ..	42388	42571
(2) General Death-rate	12·24	
(3) Death-rate from Tuberculosis ...	0·85	
(4) Infantile mortality	68·7	
(5) Number of dwelling-houses of all classes	8361	
(6) Number of working-class dwelling- houses	6012	
(7) Number of new working-class houses erected	Nil	

2.—UNFIT DWELLING-HOUSES.

I.—*Inspection.*

(1) Total number of dwelling-houses inspected for housing defects (under Public Health or Housing Acts)	941
(2) Number of dwelling-houses which were inspected and recorded under the Housing (Inspection of District) Regulations, 1910	84
(3) Number of dwelling-houses found to be in a state so dangerous or injurious to health as to be unfit for human habitation	Nil
(4) Number of dwelling-houses (exclusive of those re- ferred to under the preceding sub-heading) found not to be in all respects reasonably fit for human habitation	687

II.—*Remedy of Defects without Service of formal Notices.*

Number of defective dwelling-houses rendered fit in con- sequence of informal action by the Local Author- ity or their officers	237
--	-----

III.—*Action under Statutory Powers.*

A. Proceedings under section 28 of the Housing, Town Planning, &c., Act, 1919.

(1)	Number of dwelling-houses in respect of which notices were served requiring repairs	... ..	41
(2)	Number of dwelling-houses which were rendered fit—		
	(a) by owners	... ..	23
	(b) by Local Authority in default of owners		4
(3)	Number of dwelling-houses in respect of which Closing Orders became operative in pursuance of declarations by owners of intention to close	... ..	Nil

B. Proceedings under Public Health Acts.

(1)	Number of dwelling-houses in respect of which notices were served requiring defects to be remedied	... ..	350
(2)	Number of dwelling-houses in which defects were remedied—		
	(a) by owners	... ..	345
	(b) by Local Authority in default of owners		Nil

C. Proceedings under sections 17 and 18 of the Housing, Town Planning, &c., Act, 1909.

(1)	Number of representations made with a view to the making of Closing Orders	... ..	Nil
(2)	Number of dwelling-houses in respect of which Closing Orders were made	... ..	Nil
(3)	Number of dwelling-houses in respect of which Closing Orders were determined, the dwelling-houses having been rendered fit	... ..	3
(4)	Number of dwelling-houses in respect of which Demolition Orders were made	... ..	Nil
(5)	Number of dwelling-houses demolished in pursuance of Demolition Orders	... ..	Nil

CANAL BOATS ACTS, 1877 AND 1884.

Number of Boats added to Register in 1920	...	...	...	—
Number re-registered owing to Structural Alterations	...	...	...	—
Number re-registered owing to other reasons	...	...	...	3
				<hr/>
Total Number registered to 31st December, 1920	...	...	...	509
Total Number of Registrations Cancelled	...	...	...	11
				<hr/>
Actual Number of Boats on Register at 31st December, 1920	...	...	...	498
				<hr/>
Number of Boats Inspected in 1920	...	...	...	175
Number of Boats conforming to the Acts and Regulations	...	...	...	169
				<hr/>
Number of Boats Infringing the Acts and Regulations	...	...	...	6
				<hr/>
Total number for which the Cabins were registered	...	...	...	648
Total number occupying the Cabins	...	...	...	401
Details of occupation—Male Adults	...	...	...	179
Female Adults	...	...	...	105
Children of School Age	...	...	...	81
Children under School Age	...	...	...	36
				<hr/>
				401

DETAILS SHEWING NUMBERS INFRINGING IN RESPECT TO :—

—	...	Registration	...	...	...	...	...	—
—	...	Notification of Change of Master	...	...	...	...	...	—
1	...	Absence of Certificate	...	...	...	...	...	1
2	...	Certificate not Identifying Owner with Boat	...	...	...	...	...	2
—	...	Marking	...	...	...	...	...	—
—	...	Overcrowding	...	...	...	...	...	—
—	...	Partition (Regn. 8, b. ii.)	...	...	...	...	...	—
1	...	Females over 12 Improperly Occupying	...	...	...	...	...	1
3	...	Cleanliness	...	...	...	...	...	3
5	...	Painting	...	...	...	...	...	5
—	...	Ventilation	...	...	...	...	...	—
5	...	Dilapidation	...	...	...	...	...	5
—	...	Removal of Bilge Water	...	...	...	...	...	—
—	...	Without Pump	...	...	...	...	...	—
—	...	Refusal of Admittance of Inspector	...	...	...	...	...	—
—	...	No proper Water Vessel	...	...	...	...	...	—
—	...	Without requisite Double Bulkheads	...	...	...	...	...	—
—	...	Non-notification of Infectious Disease...	...	...	...	...	...	—
—	...	Number of Boats detained for Cleansing (not for I/D.)	...	...	...	...	...	—
<hr/>								
17	Total Cases met with.				Total cases remedied			17

Number of Legal Proceedings taken	...	...	...	...	—
Number of printed Notice Forms issued	...	...	...	...	6
Number of Notices attended to	...	...	...	...	6
Number still corresponding about	...	...	...	...	—

CITY AND COUNTY OF THE CITY OF CHESTER.

Table 1.—Vital Statistics of Whole District during 1920 and previous years.

YEAR	Population estimated to Middle of each Year	BIRTHS			TOTAL DEATHS REGISTERED IN THE DISTRICT		TRANSFERABLE DEATHS		NETT DEATHS BELONGING TO THE DISTRICT			
		Un- corrected Number	Nett		Number *	Rate	Of Non- residents registered in the District	Of Resi- dents not registered in the District	Under 1 Year of Age		At all Ages	
			Number †	Rate					Number †	Rate per 1000 Nett Births	Number †	Rate
1	2	3	4	5	6	7	8	9	10	11	12	13
1913	39,623	923	941	23·74	671	16·93	63	15	106	112·6	623	15·72
1914	39,689	917	925	23·31	597	15·04	64	28	84	90·81	561	14·13
1915	37,716	853	860	21·67	731	19·38	65	13	92	106·9	666	17·65
1916	39,730	856	856	22·65	742	18·67	107	27	78	91·12	662	16·66
1917	40,718 (B) 40,218 (D)	735	744	18·49	576	14·4	68	69	62	83·3	577	14·4
1918	40,718 (B) 40,218 (D)	744	744	22·65	680	18·67	119	112	67	90·05	673	16·66
1919	42,464 (B) 40,764 (D)	759	759	17·87	562	13·78	97	84	64	84·32	549	13·47
1920	42,571 (B) 42,388 (D)	1072	1091	25·62	543	12·81	94	70	75	68·7	519	12·24

Area of District in acres (land and inland water), 2,862.

No. of inhabited houses, 8,362.

Average No. of persons per house,

* Total deaths occurring in Chester whether of residents or non-residents.

† Births and deaths corrected for those births and deaths properly belonging to Chester, but occurring outside the District, or occurring in the District but properly belong outside.

CITY AND COUNTY OF THE CITY OF CHESTER.

Table II.—Cases of Infectious Disease notified during the Year 1920.

NOTIFIABLE DISEASE	NUMBER OF CASES NOTIFIED								TOTAL CASES NOTIFIED IN EACH LOCALITY (e.g. Parish or Ward) OF THE DISTRICT					TOTAL CASES REMOVED TO HOSPITAL
	At all Ages	At Ages—Years						St. Mary's.	St. John's.	Trinity.	Bough- ton.	St. Oswald's		
		Under 1	1 to 5	5 to 15	15 to 25	25 to 45	45 to 65						65 and upwards.	
Encephalitis Lethargica ...	1	1
Small-pox
Cholera (C) Plague (P)
Diphtheria (including Membranous Group) ...	73	8	48	7	9	9	1	...	4	28	14	25	70	
Erysipelas ...	6	...	...	...	4	4	...	1	...	1	2	1	...
Scarlet Fever ...	115	22	80	9	4	4	...	...	9	19	44	28	112
Typhus Fever ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteric Fever ...	7	...	3	1	1	1	2	...	2	1	2	2	5	
Relapsing Fever (R) ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Continued Fever (C) ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Puerperal Fever ...	7	...	...	...	...	6	...	...	2	...	3	1	3
Measles and German Measles ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cerebro-spinal Meningitis ...	1	...	1	...	...	...	...	...	...	...	...	...	...
Poliomyelitis ...	1	...	1	...	...	...	...	...	...	...	...	1	1
Ophthalmia Neonatorum ...	7	...	...	...	...	...	...	...	...	...	...	1	0
Pulmonary Tuberculosis ...	48	1	4	11	24	24	6	2	5	1	4	1	0	
Other forms of Tuberculosis ...	14	...	8	2	2	2	3	...	2	9	21	9	29	
Influenza Pneumonia ...	5	...	...	1	1	2	2	...	...	4	3	3	1
Primary Pneumonia ...	63	5	6	8	14	14	11	6	15	7	23	17	26	
Malaria ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Trench Fever ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Totals ...	348	14	151	40	64	64	26	9	46	23	70	91	249	

CITY AND COUNTY OF THE CITY OF CHESTER.

Table III.—Causes of, and Ages at Death during the Year 1920.

CAUSES OF DEATH.				NETT DEATHS AT THE SUBJOINED AGES OF "RESIDENTS" WHETHER OCCURRING WITHIN OR WITHOUT THE DISTRICT.								TOTAL DEATHS whether of "Residents" or "Non- Residents" in Institu- tions in the District.				
				All Ages.	Under 1 Year	1 and under 2	2 and under 5	5 and under 15	15 and under 25	25 and under 45	45 and under 65		65 or upwards			
All causes	{	Certified ...	...	516											
		Uncertified...	...	3								3				
1	Enteric Fever ...	...	...	2	...	...	...	1	...	...	...	1	4
2	Small-pox ...	...	...	...	...	...	...	...	...	...	...	...	...
3	Measles ...	...	...	9	...	3	5	1	...	...	...	...	1
4	Scarlet Fever ...	...	...	1	...	1	...	...	...	...	...	...	1
5	Whooping Cough ...	...	...	...	...	...	...	...	...	...	...	...	...
6	Diphtheria and Croup ...	...	...	1	...	...	1	...	...	...	...	...	7
7	Influenza ...	...	...	5	1	...	...	...	...	1	1	2	0
8	Erysipelas ...	...	...	...	...	...	...	...	...	...	...	...	0
9	Phthisis (Pulmonary Tuberculosis)	...	...	28	...	1	...	...	5	15	5	2	14
10	Tuberculous Meningitis	...	...	5	1	2	...	2	...	...	...	...	4
11	Other Tuberculous Diseases	...	...	3	...	...	...	1	...	1	1	...	2
12	Cancer, Malignant Disease	...	...	58	...	...	...	...	...	6	26	26	13
13	Rheumatic Fever	...	...	2	...	...	1	1	...	...	...	...	1
14	Meningitis	...	...	1	1	...	...	...	...	...	...	...	2
15	Organic Heart Disease	...	...	55	...	...	...	...	2	5	17	31	6
16	Bronchitis	...	...	66	12	...	1	...	...	2	18	33	5
17	Pneumonia (all forms)	...	...	42	6	3	...	4	2	9	10	8	23	
18	Other Diseases of Respiratory Organs	...	...	2	...	...	...	...	...	...	2	...	2
19	Diarrhoea and Enteritis	...	...	10	9	...	...	...	...	...	1	...	2
20	Appendicitis and Typhlitis	...	...	2	...	...	...	1	1	...	...	...	6
21	Cirrhosis of Liver	...	...	...	...	...	...	...	...	...	...	...	...
21a	Alcoholism	...	...	...	...	...	...	...	...	...	...	...	...
22	Nephritis and Bright's Disease	...	...	14	...	...	...	...	...	2	8	4	5
23	Puerperal Fever	...	...	2	...	...	...	...	2	...	...	...	3
24	Other Accidents and Diseases of Pregnancy and Parturition	...	...	3	1	...	...	...	...	2	...	...	...
25	Congenital Debility and Malforma- tion, including Premature Birth	...	...	31	30	1	...	...	...	...	...	...	4
26	Violent Deaths, excluding Suicide	...	...	17	...	1	2	3	3	3	5	...	21	
27	Suicide	...	...	1	...	...	...	...	...	...	...	...	...
28	Other Defined Diseases	...	...	154	13	4	...	3	2	17	42	73	44	
29	Diseases ill-defined or unknown	...	...	2	1	...	...	...	...	...	1	...	...	
Totals				519	75	16	10	17	17	64	137	183	170

CITY AND COUNTY OF THE CITY OF CHESTER.

Table IV.—Infant Mortality during the Year 1920.

CAUSE OF DEATH	Under 1 Week	1-2 Weeks	2-3 Weeks	3-4 Weeks	Total Deaths 1 Month	1-3 Months	3-6 Months	6-9 Months	9-12 Months	Total Deaths under 1 Year
Small-pox
Chicken-pox
Measles
Scarlet Fever
Whooping Cough
Diphtheria and Croup
Erysipelas..	1	..	..	1
Tuberculous Meningitis
Abdominal Tuberculosis (b)
Other Tuberculous Diseases	2	..	2
Meningitis (not Tuberculous)	4	..	..	..	4
Convulsions
Laryngitis..	4	..	..	..	12
Bronchitis..	..	2	..	1	3	4	3	1	1	6
Pneumonia (all forms)	1	2	1	..	1
Diarrhoea	1	..	4
Enteritis	2	..	1	..	7
Gastritis	1	..	1	2	3	2	..	..	1
Syphilis	1	..	..	..
Rickets
Suffocation, Overlying	1	..	..	1	..	..	..	..	1
Injury at Birth
Atelectasis..
Congenital Malformations (c)	1	1	4	1	..	..	..	5
Premature Births ..	2	..	..	..	7	1	..	..	..	8
Atrophy, Debility and Marasmus ..	5	1	5	..	10	5	3	1	..	19
Other Causes ..	4	..	..	..	3	..	..	..	1	4
Totals ..	14	7	6	3	30	21	12	7	5	75

Administration of the Factory and Workshop Acts, 1901 & 1907

IN CONNECTION WITH

Factories, Workshops, Laundries, Workplaces, and Homework.

1. INSPECTION.

INCLUDING INSPECTIONS MADE BY SANITARY INSPECTORS OR INSPECTORS OF
NUISANCES.

Premises. (1)	Number of		
	Inspections. (2)	Written Notices. (3)	Prosecutions (4)
Factories (including Factory Laundries) ...	114	14	—
Workshops (including Workshop Laundries)...	142	15	—
Workplaces (other than Outworkers' premises included in Part 3 of this Report)	18	0	—
Total	274	29	—

2. DEFECTS FOUND.

Particulars. (1)	Number of Defects.			Number of Prosecu- tions. (5)
	Found (2)	Remed'd (3)	Referred to H.M. Inspect'r (4)	
Nuisances under the Public Health Acts —				
Want of cleanliness	5	5	—	—
Want of ventilation	3	3	—	—
Other Nuisances... ..	19	19	—	—
Sanitary accommodation { insufficient	15	15	—	—
{ unsuitable or defective ..	4	4	—	—
{ not separate for sexes ...	2	2	—	—
Offences under the Factory & Workshop Act :				
Breach of special sanitary requirements for bakehouses (ss. 97 to 100)	12	12	—	—
Total	60	60	—	—

3. HOME WORK.

NATURE OF WORK.	OUTWORKERS' LISTS, SECTION 107.						Notices served on Occupiers as to 'keeping or sending lists.	OUTWORK IN UNWHOLESOME PREMISES, SECTION 108.	
	Lists received from Employers,							In- stances.	Notices served.
	Sending twice in the year.			Sending once in the year,					
	Lists.	Outworkers. Con- tractors	Work- men.	Lists.	Outworkers. Con- tractors	Work- men.			
Wearing Apparel :— (1) Making, etc. ...	14	—	20	5	—	5	38	1	1
(2) Cleaning & washing	—	—	2	—	—	—	—	—	—
Furniture & upholstery	—	—	8	—	—	—	—	—	—
Total	14	—	30	5	—	5	38	1	1

4. REGISTERED WORKSHOPS.

Workshops on the Register (S. 131) at the end of the year.										Number.
Dressmaking and Millinery	...	...	...	...	...	...	...	...	...	39
Bakehouses	...	...	...	...	...	...	...	...	...	41
Drapery and Tailoring	...	...	...	...	...	...	...	...	...	29
Boot and Shoe Making and Repairing	...	...	...	...	...	...	...	...	...	25
Blacksmiths and Shoeing Smiths...	...	...	...	...	...	...	...	...	...	10
Cabinet Making and Upholstering	...	...	...	...	...	...	...	...	...	5
Building Contractors	...	...	...	...	...	...	...	...	...	11
Miscellaneous	...	...	...	...	...	...	...	...	...	41
Total Number of Workshops on Register										201

5. OTHER MATTERS.

Class.	Number.
Matters notified to H.M. Inspector of Factories :—	
Failure to affix Abstract of the Factory and Workshop Acts (S. 133, 1901)	7
Action taken in matters referred by H.M. Inspector as remediable under the Public Health Acts, but not under the Factory and Workshop Act (s. 5, 1901)	16
Underground Bakehouses (s. 101) in use at the end of the year	16
	1

